

## Transaction Examples Using Open Market Pricing for Telephone Numbers

2/13/2014, 5:45:31 PM

Submitted by Jay Carpenter of The 1-800 American Free Trade Association (1-800 AFTA)

*This proposal has not been endorsed by the full membership of 1-800 AFTA. The author and 1-800 AFTA reserve the right to withdraw or modify the comments in this proposal at any time. This contribution is for discussion purposes only.*

### North American Numbering Council Future of Numbering Working Group Contribution:

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SOURCE: Jay Carpenter, representative for 1-800 AFTA

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DATE SUBMITTED: December 13, 2006

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**TITLE: Transaction Examples and Considerations Surrounding an Open  
Market Pricing Model for E.164 Telephone Numbers**

**or**

**Aunt Bee Buys and Sells Telephone Numbers.**

*An Alternative Approach to the Historic Commons Model for Telephone Number  
Administration and Allocation*

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This document is offered to the **North American Numbering Council Future of  
Numbering Working Group (FoN WG)** as a basis for discussion and is not a binding  
proposal on Jay Carpenter or **The 1-800 American Free Trade Association (1-800  
AFTA)**. Jay Carpenter and 1-800 AFTA specifically reserve the right to amend or  
withdraw the statements contained herein.

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## Transaction Examples Using Open Market Telephone Number Pricing

### A. Introduction

The following hypothetical examples and scenarios use fictitious characters from a popular television series of the 1960s to illustrate how open market pricing and a property rights model for E.164 telephone numbers (ITU compliant public telephone numbers) might function in the United States or North America. Actual data and marketing information from countries that currently have established open market pricing of E.164 telephone numbers is included to demonstrate how open market pricing with private property rights for telephone number subscribership have been implemented. Highlights within this contribution include the benefits of transitioning to an open market model in the administration of telephone numbers as well as allocation and optimization of telephone number resources. The private property model associated with an open market pricing model for telephone numbers will be contrasted with the commons model of telephone number subscribership that we have inherited from the historic and singular platform of the Public Switched Telephone Network (PSTN). Also, the recurring issue of end user subscriber authentication that is critical to Next Generation Network implementation is addressed through property rights and a proposed homesteading process to establish and register those rights in existing telephone number assignments. The premise of this contribution is that a private property model of open market tradable subscribership rights to E.164 telephone numbers is the missing piece to a workable Next Generation Network of mass communication and media delivery.

### B. Open Market Pricing Dynamics

1. **Service Opportunity (page 6)**: Open market pricing and a private property model creates the need for communication provider services to facilitate transfers of telephone numbers among end users.
2. **Incentive for Awareness and Action (page 14)**: Open market pricing creates awareness and interest in telephone number attributes. Open market pricing also creates incentive for end users to take action to move their telephone number into Next Generation Network readiness.
3. **Incentive to Register (page 14)**: End users have incentive to register subscribership once monetary value is associated with their subscribership interest.

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4. **Homestead Process (page 15)**: This is a time tested process to ferret out the authentic subscriber into an objective form. Objective subscribership is fundamentally different from the subjective state of user rights as we currently have with the commons model of telephone number assignment.
5. **Incentive for Data Accuracy (page 16)**: Once property rights are associated with subscribership of a telephone number, the subscriber has incentive to assure data accuracy for registration information.
6. **Incentive to Transfer (page 16)**: Open market pricing encourages transfers to the highest and best user of particular telephone numbers. By economic definition, this results in efficiency and optimization of this scarce resource.
7. **Incentive to Optimize or Conserve (page 20)**: Open market pricing encourages scarce resource conservation.
8. **Trust Established (page 21)**: Open market pricing fosters trusted identification and authentication of end user subscribers.
9. **Value Created for Private and Government Purposes (page 21)**: Open market pricing unleashes value that is not fully expressed in telephone numbers today. Part of that value could be a future funding source for the USF.
10. **E911 Enabler (page 21)**: Market driven registration creates data that could be used as an enhancement for other planned Next Generation Network E911 purposes.
11. **CALEA Enabler (page 22)**: Market driven registration creates data and validated connections that could be used as an enhancement for Next Generation Network CALEA purposes.
12. **Dispute Resolution Alternative (page 23)**: Market based transfers can be substituted for inefficient dispute resolution processes.
13. **Personalization (page 23)**: Open market pricing of telephone numbers offers another value proposition for end users to personalize their communication services. This form of personalization could have

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a similar appeal as the largely unforeseen popularity of personalized ring tones. Telephone number personalization via greater consumer choice of specific E.164 telephone numbers could have a profound impact for communications and media delivery far beyond the impact of ring tones.

- 14. Location Enabler (page 24):** The market driven registration process inherent in an open market exchange of telephone numbers should hasten the gathering of end user data. Part of this data could be used as a replacement for the geographic association of today's telephone numbering.
- 15. State Jurisdiction Enabler (page 24):** The market driven registration process with address information associated with the end user could provide a pathway for state regulators to claim jurisdiction over telephone numbers regardless of NPA.
- 16. Legacy Compatible (page 26):** Open market pricing creates an incentive to take action regarding an end user registering their subscriber rights but this action is purely voluntary. All end users that take no action will be unaffected.
- 17. Technology Neutral (page 27):** Open market pricing of telephone numbers is completely technology neutral. Pricing becomes a dynamic governing factor that takes into account changes in technology on a real time basis.
- 18. Communication Service Provider Neutral (page 27):** Open market pricing shifts numbering resource allocation directly to the end user with the communication service provider taking the role of an administrative facilitator. This creates a level playing field for all communication service providers regarding numbering resources. It is also likely to open a greater selection of consumer services from multiple providers.
- 19. Service Neutral (page 27):** Under open market pricing and ENUM, telephone numbers become service agnostic. A telephone number becomes free to accept all communications and media. Telephone numbers become pure electronic addresses for any electronic communication/media service. The dual numeric and phrase nature of

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telephone numbers could provide end users with a best of both worlds electronic address for communications and media convergence.

**20. Dynamic in Real Time (page 28):** Price set by an open market becomes a singularity reflecting all available information at any given moment. This opens the ability for the marketplace to immediately react to changes in technology, population, culture or other factors that are impossible to predict by fiat.

### **C. Cast of TV Characters Living in Mayberry, North Carolina U.S.A.**

- **Aunt Bee Taylor** – Age 70 – Homemaker and blue ribbon apple pie baker
- **Millie** – Age N/A - Aunt Bee's friend and confidant (Millie fibs about her age)
- **Opie Taylor** – Age 10 – 4<sup>th</sup> grader and Next Generation Network wizard
- **Barney Fife** – Age 40 – Deputy Sheriff and aspiring chef
- **Andy Taylor** – Age 45 – Sheriff of Mayberry, Aunt Bee's nephew and Opie's father
- **Howard Sprague** – Age 45 – Book store owner and entrepreneur
- **Gomer Pyle** – Age 25 – U.S. Marine and crooner
- **Floyd Lawson** – Age 40 – Barber and amateur philosopher
- **Mayberry Telecom** – Communications provider, Mayberry, North Carolina
- **Mount Pilot Telecom** – Communications provider, Mount Pilot, North Carolina

### **D. Open Market Transaction Examples and Considerations**

Let's assume an open market for telephone numbers is introduced for the North American Numbering Plan. The introduction of open market pricing for telephone numbers is a fundamental change from the current commons model for telephone numbers where telephone numbers must be issued on a first-come, first-serve basis, exchanges from one subscriber to another are prohibited and telephone numbers must be returned to the spare pool without compensation to the end user once a telephone number is disconnected.

Aunt Bee Taylor has used the same telephone number for over 40 years. Let's assume the number is 1-336-555-2665 and can be configured in the following forms:

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Numeric form.....1-336-555-2665  
“BOOK” Phrase form.....1-336-555-BOOK  
“COOK” Phrase form .....1-336-555-COOK  
“COM5” Phrase form.....1-336-555-COM5 (misdial for 1-336-555-COMB)  
(see additional configurations below)\*

Aunt Bee is unaware of various phrase attributes of the telephone number and has no use for these particular phrase configurations of the number. Aunt Bee is quite content to continue using the telephone number forever and she would be very upset if she had to change her telephone number involuntarily. Aunt Bee would also be upset if she started receiving a large volume of misdials. Aunt Bee’s communications provider is Mayberry Telecom.

### **Service Opportunity (Item B.1 Elaboration):**

Three basic items are chosen by the consumer when communication/media service is established today. At the outset of service, the customer is asked:

- i. What **equipment** do you want (cell phone, Smartphone, etc.)?
- ii. What **service package** do you want (long distance, text messaging, data, television delivery, etc.)
- iii. What **telephone number** do you want (i.e. pick from a list in our pool of numbers)?

Service providers or communication providers currently build their business models on providing two of the three essential ingredients for the communication/media needs of the customer. An open market in telephone numbers opens the possibility of a telephone number based business model for services associated with assisting the consumer with the third component (i.e., telephone number selection, exchange and administration).

Let’s assume that communications providers such as Mayberry Telecom and Mount Pilot Telecom launch a marketing campaign on January 1, 2008 to offer services surrounding assisting their customers who choose to engage in the free trade of their telephone numbers for a market price. These communication provider services might include assisting end users with contacting other end users to negotiate price, assuring a smooth transfer from subscriber to subscriber and guarding against fraudulent sales of telephone numbers by entities posing as the valid end user. Service opportunities for communication providers surrounding telephone number market transactions might very well resemble services currently associates with real estate transfers (title insurance, brokerage



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services, escrow, etc.), automobile transfers (title transfer, brokerage, insurance etc.) or online auctions (eBay etc.). In addition, although Aunt Bee might initially become interested in the value and possible trade of her telephone number, her inquiry to Mayberry Telecom regarding “how much is my telephone number worth” could be her introduction to Next Generation Network services that would be available after she registered her subscribership into an official database such as ENUM.

This could open a pathway for service providers to shift from transmission-centric business model strategies to electronic address-centric business model strategies. Providers could shift from transmission or line competitive edge to electronic or address competitive edge. Communication service providers should be allowed to “own” telephone number subscription rights just as other general end users “own” telephone number subscription rights and offer these rights for sale in the open market or to the service provider’s customer base. Any end user that is currently assigned a telephone number should be recognized as the authentic end user subscriber through the homesteading process as outlined below.

If service providers listen to this proposal as one for them to sell telephone numbers and telephone number exchange transaction services (brokerage, title insurance, listing services, etc.) to end users, then this could be an exciting opportunity to leverage existing customer relationships that are currently one of their competitive edges over competitors from outside the traditional telecommunications industry (MSN, Yahoo, Skype, Youtube, etc.). The shift to open market pricing of subscribership rights opens an opportunity to sell services surrounding exchanges of telephone numbers. This proposed transformation from the legacy commons model to a contemporary private property model could open a new business model and opportunity for communication service providers if it is viewed as such.

Australia is one of the first countries to embrace and open market for subscriber rights to telephone numbers. The dominant telecommunications provider in Australia, Telstra, is active in facilitating the exchange and providing specific telephone number offerings in the marketplace. Telstra is a partner in all transactions noted as “1300 Australia Pty Ltd” in the listing below. A view of the services provided by Telstra involving specific telephone numbers can be found at:

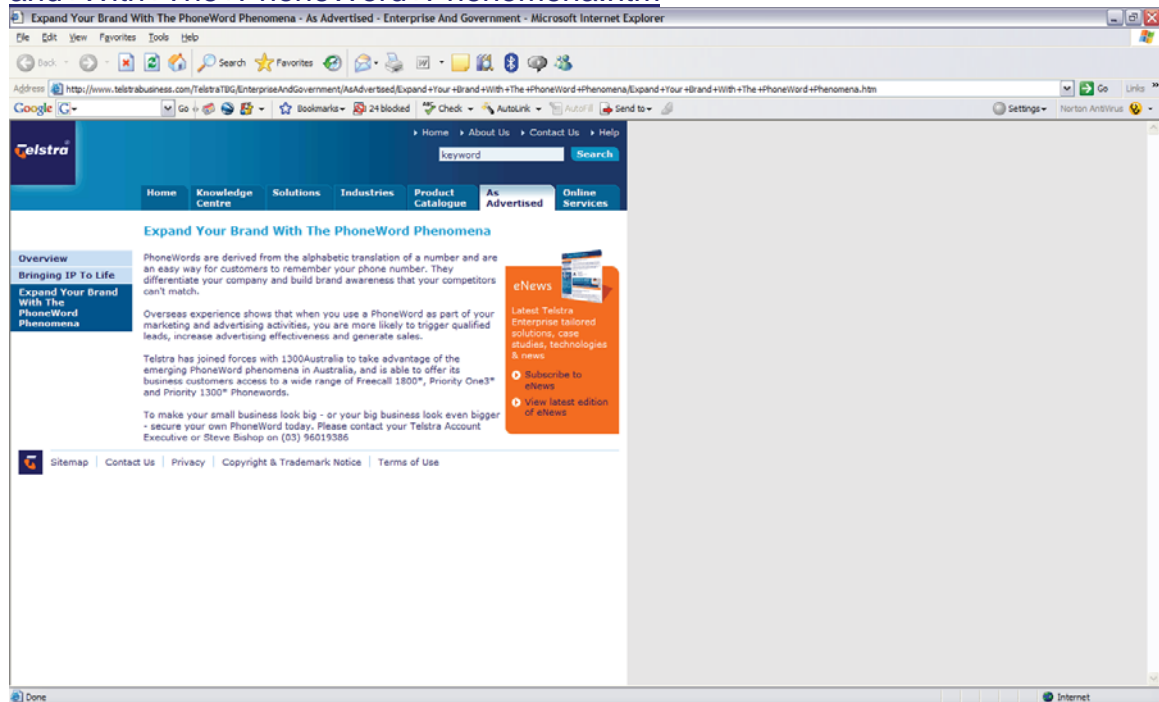
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<http://www.telstrabusiness.com/TelstraTBG/EnterpriseAndGovernment/AsAdvertised/Expand+Your+Brand+With+The+PhoneWord+Phenomena/Expand+Your+Brand+With+The+PhoneWord+Phenomena.htm>



<http://www.telstrabusiness.com/TelstraTBG/RetailWholesale/LatestOffers/Promotions/Phonewords.htm>



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The screenshot shows the Telstra website's 'Promotions - Latest Offers - Retail & Distribution' page. The main heading is 'Expand Your Brand With The PhoneWord Phenomena'. Below this, there's a section titled 'PhoneWords' with a sub-header 'Words are easier to remember than numbers'. A woman is shown standing next to a large stack of white containers. Text on the page says: 'Consider 1300KINGSLEYS as opposed to 1300 444 475. Which one do you think people will recall? Call us on 1300BUSINESS today'. A 'Special offer' section states: 'Take up a Telstra PhoneWord solution today and you'll receive 50% OFF your monthly PhoneWord rental fees\* until 30 June 2007'. A 'What is a Telstra PhoneWord?' section explains that people are more likely to remember a word than a number. A 'Remarkable results' section mentions that 1300CarLoan, a start-up company, now receives nearly 10,000 calls per month.

This screenshot shows the same Telstra website page but with more content visible. The 'Remarkable results' section is expanded, showing a bar chart titled '1300 Car Loan' with the y-axis ranging from 0 to 10,000. The x-axis shows months from December to June. The text states: 'Six months ago, 1300CarLoan was a start-up company just finding its feet. They now receive nearly 10,000 calls per month and are soon to expand nationally. They put their growth down to their PhoneWord and the advertising recall it delivers.' A quote from Rod James and Peter Leavellyn, joint CEOs of Motor Finance Wizard, is included. A 'Call us on 1300BUSINESS today' button is present. A 'Things you need to know' section lists terms and conditions, including a 31 January 2007 deadline and a 3-year minimum term. The footer contains links for Sitemap, Contact Us, Privacy, Copyright & Trademark Notice, and Terms of Use.

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Articles > Smart Phone Word Numbers Give Business a 2nd Chance at Domain Name Registration

<http://mcwebs.com.au/resource-centre/free-articles/smart-phone-word-numbers-give-business-a-2nd-chance-at-domain-name-registration.html>

## Smart Phone Word Numbers Give Business a 2nd Chance at Domain Name Registration



Many small businesses fail to realise that domain names are registered on a first in, first served basis.

When registering a domain for a client, we often run into the problem that the domain name that they want for their business is already taken. If you are a business in Australia ideally you want the .com.au domain name. If it was already registered business owners had very little choice but to either:

- register a .net.au address or
- .com address.

Until Now.

## Phone Words

The increase in the number of companies marketing their phone numbers using phone words provides a new opportunity to businesses.

So what are phone words? From the [Australian Communications and Media Authority \(ACMA\) website](#):

Phonewords are made up from the letters of the alphabet that appear on a telephone keypad. These letters can be used to form a word, or a part word/part number combination, which can then be dialled as a telephone number to access a particular service. One example is '1300 FLIGHT'. Every phoneword has a primary underlying phone number, or in some cases more than one number, used by the telecommunications network as an 'address' for delivering the call.

Some Examples:

- 1300 FOXTEL would be 1300 369 835 and [1300foxtel.com.au](http://1300foxtel.com.au)
- 1800 THRIFTY would be 1800 847 4389 and [1800thrifty.com.au](http://1800thrifty.com.au)
- 1300 CARLOANS would be 1300 2275 6262 and [1300carloans.com.au](http://1300carloans.com.au)

The branding and customer recall benefits from a single brand, website and phone number are obvious.

## Free Tools:

There is a great tool that you can use [to check domain name availability](#) and upcoming [Phone Words auctions](#).

**Source:**

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[http://www.acma.gov.au/ACMAINTER.1900810:STANDARD::pp=DIR2\\_10,pc=PC\\_1682](http://www.acma.gov.au/ACMAINTER.1900810:STANDARD::pp=DIR2_10,pc=PC_1682)

## Consumer Fact Sheet

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### Phonewords

This fact sheet describes what phonewords are, how they work, and their use in Australia. The aim of this fact sheet is to provide you with information to ensure you are able to make best use of services accessed by dialling phonewords.

#### What are phonewords?

Phonewords are made up from the letters of the alphabet that appear on a telephone keypad. These letters can be used to form a word, or a part word/part number combination, which can then be dialled as a telephone number to access a particular service. One example is '1300 FLIGHT'. Every phoneword has a primary underlying phone number, or in some cases more than one number, used by the telecommunications network as an 'address' for delivering the call.

The types of numbers that are most commonly used for phonewords include those beginning with the prefixes '1300', and '1800', which are 10 digits in length, and numbers beginning with '13', which are generally six digits in length.

#### How can I obtain a phoneword?

Businesses and individuals may purchase the rights of use to any freephone (1800) or local rate (13 or 1300) number through ACMA's **smartnumbers®** system. This is an online auction system which enables efficient and equitable access to available freephone and local rate numbers. For more information visit [www.smartnumbers.com.au](http://www.smartnumbers.com.au).

### Top 100 Australian Telephone Number Auction Transactions

Source: <http://www.smartnumbers.com.au/app/action/viewHome>

Number	Winning Bidder Organisation	Winning Bid Amt
138294	Managed Performance Pty Ltd	\$1,005,001.00
1300842538	Viajet International Pty Ltd	\$300,000.00
	ACCESS COMMUNICATIONS NET PROPRIETARY	
135466	LIMITED	\$252,500.00
138973	ANZ Wheels	\$210,000.00
1300254637	1300 BLINDS PTY LTD	\$200,000.00
1300346262	1300 Australia Pty Ltd	\$173,000.00
1300356937	Australian Phone Names Registry Pty Ltd	\$152,500.00
135626	1300 Australia Pty Ltd	\$150,000.00
132886	1300 Australia Pty Ltd	\$127,500.00
134473	1300 Australia Pty Ltd	\$102,500.00

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1300468357	Rockford Hotels	\$100,000.00
1800842538	Viajet International Pty Ltd	\$100,000.00
137673	Paramount Australia (Vic) Pty Ltd	\$92,500.00
135327	1300 Australia Pty Ltd	\$85,000.00
1300872835	AOT Group Pty Ltd	\$80,000.00
133637	Easy Words PTY LTD	\$77,500.00
1800872835	AOT Group Pty Ltd	\$73,240.00
1300356747	F W ASH & SONS PTY LTD	\$72,500.00
137499	Stephen James Gethin	\$67,500.00
1300347328	krumpet no 10 p/l	\$67,500.00
1300633422	Managed Performance Pty Ltd	\$67,500.00
1300287743	AHL Investments Pty Limited	\$57,500.00
1300025463	Damo Vass	\$55,000.00
1300246447	Easy Words PTY LTD	\$54,374.00
135627	Regent Personnel Pty. Ltd.	\$53,500.00
137246	Managed Performance Pty Ltd	\$53,240.00
137678	AUSTRALIA POST	\$50,001.00
134663	1300 Australia Pty Ltd	\$50,000.00
1800869682	Dicta Pty Ltd	\$49,304.00
137665	Garry Bradd	\$47,263.00
1300253264	1300 Australia Pty Ltd	\$45,000.00
134222	1300 Australia Pty Ltd	\$44,000.00
138255	Australian Phone Names Registry Pty Ltd	\$42,350.00
1300465432	1300 Australia Pty Ltd	\$42,350.00
137767	Managed Performance Pty Ltd	\$40,263.00
137368	1300 Australia Pty Ltd	\$40,000.00
1300101010	Tamawood Limited	\$40,000.00
1300123456	Capital Guaranteed Investments Limited	\$40,000.00
1300646464	1300 Australia Pty Ltd	\$40,000.00
1300749927	tomorrow marketing	\$40,000.00
132729	1300 Australia Pty Ltd	\$39,658.00
1300727235	1300 Australia Pty Ltd	\$37,000.00
135363	1300 Australia Pty Ltd	\$36,603.00
1300467873	1300 Australia Pty Ltd	\$36,603.00
1300354448	Turkad Consulting	\$35,000.00
1800354448	Turkad Consulting	\$33,000.00
1300668437	1300 Australia Pty Ltd	\$32,000.00
133784	Hudson Property Investments	\$30,613.00
138723	1300 Australia Pty Ltd	\$30,500.00
134444	KDV	\$30,250.00
139283	1300 Australia Pty Ltd	\$30,250.00
1300637724	1300 Australia Pty Ltd	\$30,250.00
136663	1300 Australia Pty Ltd	\$30,000.00
137278	1300 Australia Pty Ltd	\$30,000.00

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137377	Douglas Scott	\$30,000.00
1300276537	1300 Australia Pty Ltd	\$30,000.00
1300356677	Sydney Flooring Pty Ltd	\$29,700.00
1300468737	M & C ANGILLEY	\$29,282.00
1300869682	Cassco Pty Ltd	\$29,261.00
1300432584	Liposuction Australia Pty Ltd	\$28,678.00
1300465336	Jacaranda Pacific Pty Ltd	\$28,618.00
1300267769	Turkad Consulting	\$28,500.00
1800363743	1300 Australia Pty Ltd	\$28,000.00
131212	Transport Administrative Services Pty Ltd	\$27,500.00
132277	1300 Australia Pty Ltd	\$27,500.00
133456	Setamex	\$27,500.00
134646	Shannons Limited	\$27,500.00
135353	1300 Australia Pty Ltd	\$27,500.00
135555	Kirfman Pty Ltd	\$27,500.00
135625	Jacty Pty Ltd	\$27,500.00
136633	Thomson Playford Services Pty Ltd	\$27,500.00
136666	Air Paradise International	\$27,500.00
139999	sheen panel service[vic] pty ltd	\$27,500.00
1300774687	Primus Telecommunications Pty Ltd	\$27,500.00
1800276537	Jacaranda Pacific Pty Ltd	\$27,500.00
1800742737	ASX Perpetual Registrars Limtied	\$27,500.00
1300949273	Australian Phone Names Registry Pty Ltd	\$27,286.00
138367	1300 Australia Pty Ltd	\$27,000.00
1300776787	Turkad Consulting	\$26,500.00
1300926242	1300 Australia Pty Ltd	\$25,724.00
1300247266	1300 Australia Pty Ltd	\$25,000.00
1300267437	1300 Australia Pty Ltd	\$25,000.00
1300288672	1300 Australia Pty Ltd	\$25,000.00
1300372678	1300 Australia Pty Ltd	\$25,000.00
1800627463	1300 Australia Pty Ltd	\$25,000.00
1300527867	1300 Australia Pty Ltd	\$24,200.00
1300252767	1300 Australia Pty Ltd	\$22,385.00
1800874368	1300 Australia Pty Ltd	\$22,385.00
135296	Whitech Pty. Ltd.	\$22,000.00
136744	Easy Words PTY LTD	\$21,296.00
135000	Silver Top Taxi Service Ltd	\$21,223.00
1300746637	Turkad Consulting	\$21,175.00
1800272237	1300 Australia Pty Ltd	\$21,000.00
1300246423	HOSTPLUS Pty Ltd	\$20,900.00
134722	Damo Vass	\$20,365.00
137467	Bob Jane T-Marts	\$20,132.00
136683	1300 Australia Pty Ltd	\$20,000.00
137867	1300 Australia Pty Ltd	\$20,000.00

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1300394287 1300 Australia Pty Ltd

\$20,000.00

The total number of Australian telephone numbers reported in the auction results is currently 12,574 transactions. Most of the transactions (approximately 10,000) were for \$1,000 (Australian dollars) or less.

### **Incentive for Awareness and Action (Item B.2 Elaboration):**

Aunt Bee could become curious regarding how much 1-336-555-2665 is worth from a number of sources. Let's assume Aunt Bee recently talked to her friend Millie and discovered that Millie had sold her telephone number for enough money to pay for Millie's plane ticket to Hawaii. After speaking with Millie, Aunt Bee is likely to contact Mayberry Telecom to inquire about the exact value of her telephone number. She is also likely to be interested in learning the procedure to entertain offers for 1-336-555-2665. The Mayberry Telecom customer service representative tells Aunt Bee that the first step to finding out what her telephone number is worth is to list 1-336-555-2665 for open bidding by registering her interest as the official subscriber of the telephone number. Aunt Bee could set a reserve for her telephone number to assure that the number must receive a minimum amount before she would be willing to change her telephone number.

### **Incentive to Register (Item B.3 Elaboration):**

If telephone number subscriber such as Aunt Bee is interested in entertaining offers for her telephone number, she must register her subscribership interest in a database (1.e164.arpa for example). She is concerned about publicly revealing her name and address in the registration but the customer service representative assures her that the registration can be either private or public. Private registration would be similar to an automobile registration where the title holders' name and address is protected from unauthorized access. The customer service representative from Mayberry Telecom also tells Aunt Bee that additional services are available such as sending pictures of Opie to Millie via 1-336-555-2665 after the telephone number is registered. These services are associated with a new term for Aunt Bee which is end user opt-in ENUM. Aunt Bee is told that the new ENUM services will work immediately if Aunt Bee is interested in having these new multi-media services associated with 1-336-555-2665.



## Transaction Examples Using Open Market Pricing for Telephone Numbers

2/13/2014, 5:45:31 PM

Submitted by Jay Carpenter of The 1-800 American Free Trade Association (1-800 AFTA)

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### **Homestead Process (Item B.4 Elaboration):**

Aunt Bee is told however that there is a waiting period before 1-336-555-2665 could be transferred to another customer and as long as no one disputes that Aunt Bee is the correct subscriber, she will be free to trade the number after the waiting period. This is the equivalent of a homestead process to move from a subjective to an objective subscribership status for Aunt Bee's interest in 1-336-555-2665. Let's assume the waiting period is six months after the initial registration and there is no waiting period for a transaction if Aunt Bee has had 1-336-555-2665 registered for longer than six months. In addition the customer service representative tells Aunt Bee that if she is offered a price she is willing to take for the number, Mayberry Telecom has a program to assure that the transfer will go smoothly. The customer service representative tells Aunt Bee that Mayberry Telecom charges a fee to handle the registration of 1-336-555-2665 and a fee to list the telephone number for sale. Aunt Bee agrees to pay the registration fee and listing fee and she directs the registration to be in a private form so her name and address will be safeguarded.

Transformation from Subjective to Objective Subscribership: This method of homestead has a significant consequence for communication providers such as Mayberry Telecom. As currently proposed, it will be solely the responsibility of the communication provider to designate the authentic subscriber of a given telephone number. This creates a **subjective** state of subscribership. If the question must be posed to someone or some entity "who is the subscriber for this telephone number" then the state of subscribership rests within the judgment of the entity being asked the question and the subscribership is subjective. If there exists a database where the subscribership information resides and the database can be queried by authorized parties to match subscribership information to end user identification and no third party needs to be asked to make a judgment then **objective** subscribership exists.

Mayberry Telecom could benefit from an objective process to filter out authentic subscribership. A process to transform telephone numbers from a subjective state of subscribership to an objective state of subscribership could relieve Mayberry from the potentially problematic process of sorting through whom is the rightful subscriber for a given telephone number. For example, if Aunt Bee's nephew Andy Taylor has taken over paying Aunt Bee's telephone bill, it is likely that Andy's name and address would appear on the monthly invoice. In this case, Andy Taylor could appear as the subscriber for Aunt Bee's telephone number. If Aunt Bee and Andy have a dispute regarding the rightful subscriber to the telephone number, Mayberry Telecom will be stuck in the middle and must



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assume the role of arbiter to solve the dispute. With an objective process similar to the time tested homesteading process, Mayberry Telecom's role as arbiter fades away as time passes and end users stake claim to subscribership rights by registering their interest in their telephone number in a publicly available database that can still mask specific subscriber information.

### **Incentive for Data Accuracy (Item B.5 Elaboration):**

Because Aunt Bee anticipates a monetary transaction involving her telephone number, her incentive to populate the registration information increases. Just as she would be concerned with the accuracy of the title to her automobile or the title to her home containing accurate spelling of her name and address, the same incentive would apply to her telephone number once monetary value is associated with the telephone number. Under a commons model where she has no property interest in the telephone number, she might not be as concerned if the registration contains a misspelling of her name such as "Bea Taylor", "Be Taylor" or "Bee Tayler". The telephone number will work no matter how her name is spelled on the monthly telephone service invoice. Also, she might have reason to register the telephone number in both her name and her nephew's name Andy Taylor. This dual registration could be a part of her planning for her care in the event she became incapacitated and she wanted assurance that Andy would be able to intervene on her behalf to provision her communications if she was unable to. The significance of this safeguard could increase as financial transactions become tied to telephone numbers (see mobile e-wallet initiatives). This incentive for data accuracy becomes an important factor in bolstering the integrity of the registration database. Other dynamics and applications of the registration database such as E911, e-wallet, spam prevention, CALEA etc. could be enhanced by this inducement to accurately populate the registration information. These points will be covered in greater detail later in this document.

### **Incentive to Transfer (Item B.6 Elaboration):**

Aunt Bee sells her telephone number subscriber rights to Barney Fife:

Now that Aunt Bee has met the proposed homesteading requirements to establish her subscribership interest, she is ready to entertain monetary offers for 1-336-555-2665. Let's assume that 1-336-555-2665 has been registered for the required six month holding period without challenge to her subscribership position. Since the telephone number is registered into the Tier 1B ENUM

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database for country code 1, Opie could check via the Internet to see if anyone has indicated an interest in purchasing Aunt Bee's subscriber rights. Opie will probably go to a site such as 1.e164.arpa/marketplace to check for any bids. Let's hope the eventual domain will have a little more marketing appeal. Opie might see that two bidders are interested in Aunt Bee's telephone number. Barney Fife is interested because he is planning to open a cooking school in Mayberry and he would like to use the number as 1-336-555-COOK. Howard Sprague is interested in the number because Howard operates a book store in Mayberry and he is interested in the telephone number because it can spell 1-336-555-BOOK. This telephone number would be easier for Howard's customers to remember and would communicate more in his bookstore advertisements. Barney continues to bid for 1-336-555-2665 until Aunt Bee accepts his bid and contacts Mayberry Telecom instructing them to go ahead with the sale of 1-336-555-2665 to Barney.

Floyd the barber could be another party interested in Aunt Bee's telephone number if Floyd heavily advertises his totally distinct telephone number of 1-336-555-2662 (1-336-555-COMB). If Floyd and Aunt Bee discover that many customers are mistakenly dialing a 5 instead of a 2 at the end of the call attempt when they are trying to reach Floyd, Aunt Bee (1-336-555-COM5) will be receiving many calls that were intended for Floyd. If this is the situation, it might be in the best interest of all for Floyd to purchase Aunt Bee's 1-336-555-COM5 telephone number and terminate it in the same way as 1-336-555-COMB is terminated. With an open market pricing model for subscriber rights to telephone numbers, this transaction where all parties win will be possible. This telephone number misdial scenario is analogous if not identical to radio spectrum interference scenarios. A great deal of academic, regulatory and empirical investigation and experience has pointed to open market pricing of well defined property rights in assets subject to this "interference" as the optimal way to resolve this issue. Coase Theorem which was postulated by the Nobel Economist Ronald Coase (Coase, Ronald H. "The Problem of Social Cost", 3 *J. Law & Econ.* 1-44 (1960)) is the source for fundamental reasons why a private property model is more efficient than a commons model in resource utilization by society.

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Specific examples that exist today where entities operate multiple telephone numbers that closely resemble one another in all likelihood to accommodate misdials are:

Stanley Steemer Cleaning Service:

1-800-STEEMER (main telephone number appearing in advertisements)

1-800-STEAMER (telephone number terminating in the same fashion as above)

Southwest Airlines:

1-800-I-FLY-SWA (main telephone number appearing in advertisements)

1-800-SOUTHWEST (telephone number terminating in the same fashion as above)

Holiday Inns:

1-800-HOLIDAY (main telephone number appearing in advertisements)

1-800-HOLIDAY (telephone number terminating in the same fashion as above)

### Aunt Bee buys subscriber rights to a telephone number from Gomer Pyle

Aunt Bee is in need of a new telephone number to replace 1-336-555-2665. She has three basic alternatives:

- i. Sale With No Replacement: Keep the proceeds from the sale of 1-336-555-2665 and no longer use a telephone number. This alternative might be viable if Aunt Bee moved into a care facility where she no longer needed a telephone number assigned to her.

Deposit Characteristics: This also creates a scenario where the price an end user pays for a telephone number operates like a deposit rather than a charge. With the right to sell the telephone number at the end of the period of usage for that end user, there will be an expectation of recovering some or all of the up front price. With inflation or a change in other dynamics, the end user might even experience a gain on the sale of the telephone number at the end of the usage period.

Price versus Charge: If Aunt Bee were asked to pay a charge upon initially using the telephone number, this charge would be

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a sunk cost and would probably be met with resistance. Charging for telephone numbers that have been free for the asking is likely to be resisted unless there is a counter balancing benefit such as the potential for price appreciation or at a minimum monetary recovery at the end of the usage period for Aunt Bee. A model where the charging of fees is assessed initially for the use of a telephone number will perform much differently than an open market pricing model. Charging could have a deterrent affect while opening telephone numbers to market pricing could unleash value (e.g. 1-336-APPLE-PIE) that actually encourages greater usage and consolidation of communication modes for individual end users under individual telephone numbers.

- ii. Non-Descript Telephone Number at Nominal Price: She can buy a new telephone number for a nominal price that spells no phrases and has no repeating digits. An example of a nominal value telephone number might be 1-336-555-1230. When this nominal value telephone number is assigned to her, the same opportunity exists to create a subscribership registration even though the price Aunt Bee would pay for the new telephone number would be nominal.
- iii. Specialized Telephone Number With Value: She might be interested in buying a telephone number that spells something meaningful to her like 1-336-APPLE-PIE. Aunt Bee has been told by her nephew Andy Taylor that her apple pies are the best he's ever tasted and Aunt Bee has won a blue ribbon at the County Fair for her baking skills. 1-336-APPLE-PIE is also appealing to Aunt Bee because her phone number will be prominently displayed in the new set of ENUM related services that give her a social networking presence. These characteristics represent value for Aunt Bee. Currently let's assume 1-336-277-5374 (1-366-APPLE-PIE) is assigned to Gomer Pyle. Gomer might not be aware of this attribute of the telephone number and probably this configuration would have little or no value to Gomer anyway. Therefore, the current prohibition of open market exchange of telephone numbers results in value that would otherwise be expressed going to waste. This special telephone number might even be an

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opportunity for Andy Taylor to purchase 1-336-APPLE-PIE for Aunt Bee as a present for her 70<sup>th</sup> birthday.

Provider to Provider Transaction: Let's assume that Gomer Pyle is the end user subscriber for 1-336-APPLE-PIE (1-336-277-5374). Andy or Aunt Bee could contact Mayberry Telecom to handle the purchase from Gomer Pyle who is a Mount Pilot Cable telephone service customer. In this case, the respective providers would have an opportunity to assist their customers in both the sale and purchase of telephone numbers while maintaining and possibly strengthening those customer relationships.

Customer to Customer Within Provider Transaction: Perhaps Gomer is a Mayberry Telecom customer. In this situation the transaction would occur as an internal transaction within the Mayberry Telecom customer base.

1-NXX-APPLE-PIE Alternatives: Perhaps Aunt Bee would be willing to look outside the 1-336 NPA to find the phrase "APPLE-PIE" associated with her new telephone number. If so, this will create a more dynamic and efficient market for telephone numbers.

### **Incentive to Optimize or Conserve (Item B.7 Elaboration):**

Open market pricing encourages scarce resource optimal allocation and conservation. Once open market pricing of telephone numbers is introduced, the concept of exhaust disappears. Price will eclipse the notion of exhaust. In the above example, both telephone numbers (1-336-555-2665 and 1-336-277-5374) are simultaneously in use and yet always available for new users. The flexible mechanism shifts to a real time process of constantly evaluating what user values a given telephone number the most. With open market pricing, anyone that values 1-336-555-2665 or 1-336-277-5374 more than Aunt Bee or Gomer will be free to offer them an amount that could make it worth while to change their telephone numbers.

Any given set of telephone numbers could serve the communications needs of North America or the world. At the extreme, only one telephone number is needed for the entire world. Consider that this one hypothetical telephone number would operate like the main number to a switchboard or PBX that has an

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infinite number of extensions. Of course this one universal telephone number is an unrealistic solution to today's communication needs but it does help illustrate that the notion of exhaust is a problem created by factors outside of today's technology or economic supply and demand. In the above example, market pricing serves as the catalyst to pair 1-336-APPLE-PIE with the end user that will derive the most societal value from the telephone number. Without open market pricing, this societal value optimization will not be present.

### **Trust Established (Item B.8 Elaboration):**

Open market pricing and property rights foster trusted identification and authentication of end user subscribers. Because end users will have monetary incentives to accurately populate registration information associated with their telephone numbers, an element of trust and integrity will be introduced into the telephone numbering system that is not present today. Also, under the public notice of the existence of a registration associated with Aunt Bee's telephone number, Aunt Bee has incentive to maintain a clean record of usage associated with her telephone number. This is similar to the registration of an automobile. If the automobile you drive was unregistered to you and you do not have an ownership interest in it, your concern for who you might allow usage of the automobile and what they do with it might be of no consequence to you. On the other hand, because your automobile is registered to you, there is incentive on your part to assure the automobile is always driven responsibly regardless of whoever might be driving at any given time. This framework of incentives and accountability for trust could apply to issues currently under consideration surrounding Sarbanes-Oxley compliance and fraudulent telephone record access via pretexting. This area in Next Generation Network design is called "shared trusted resources" (Richard Shockey, Neustar, presentation to the ATIS Strategic Advisory Group – Technologies Forum Opportunities, October 25, 2006).

### **Value Created for Private and Government Purposes (Item B.9 Elaboration):**

Open market pricing unleashes value that is not fully expressed in telephone numbers. As mentioned above, open market pricing of telephone numbers unleashes value that is suppressed under today's commons model of telephone number administration and allocation. Once this value is allowed to come forward through open market pricing and the introduction of a bundle of property rights for end users of telephone numbers, part of that value could be captured as a future funding source for the USF, capital gains taxes from transfers and other possible sources of governmental revenue.



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### **E911 Enhancement (Item B.10 Elaboration):**

Although end users might have other incentives to register their telephone numbers, market driven incentives could significantly increase the likelihood that subscribers will register property rights associated with the telephone number(s) they use. Registration creates data for E911. When Aunt Bee registers her telephone number for a potential market driven transfer, she simultaneously creates a source of end user information that could theoretically be used as an enhancement for Next Generation Network E911 purposes. Although Aunt Bee might be enjoying her trip to Hawaii when she experiences a surfing accident, her newly registered telephone number 1-336-APPLE-PIE might contain a series of contact information references similar to the ICE (In Case of Emergency) codes that are now encouraged for entry into cell phone contact lists. For example, within the ENUM Tier 1B registry, there could be a provision for populating Andy Taylor's contact information and perhaps Opie Taylor and Barney Fife who would likely be well apprised of Aunt Bee's Hawaii vacation from pictures and blogging she has posted on her MySpace™ like 1-336-APPLE-PIE ENUM enabled site.

Although a solution that would be more precise such as Global Positioning Satellite (GPS) enabled hand sets might be the primary solution for E911 service, ICE embedded registration information for Aunt Bee in the Tier 1B database could be complementary and synergistic with the other E911 methods. For example, even when Aunt Bee is found in medical distress on the beach in Maui, Andy Taylor might be the best source to disclose Aunt Bee's medical history to the Hawaiian paramedics that come to her aid. Andy will no doubt be needed to coordinate and authorize Aunt Bee's medical care while she is in Hawaii. Even when Aunt Bee is in Mayberry, E911 data could provide a "most likely" location for Aunt Bee if GPS or something more precise is not available.

This market driven solution to E911 data collection and access is elegant in it's neutrality to communication technology and transport (PSTN or IP network). The registration database (I am proposing the 1.e164.arpa Tier 1B) becomes end user centric with the telephone number providing the gateway for authorized access to specific information about the subscriber.

### **CALEA Enhancement (Item B.11 Elaboration):**

Registration creates data and validated connections for CALEA. Again because of the inherent incentive for end users to safeguard against unauthorized abuse



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of their telephone numbers and because a history of trust can be associated with end user registered telephone numbers, the integrity of communications will be enhanced with a combination of open market pricing and property rights for telephone numbers. Consider that market driven registrations will produce something akin to a freeway where some automobiles are displaying a license plate and others are not. This affords an opportunity to distinguish trusted communication connections from unregistered and therefore possibly anonymous calling or called parties. This system of trusted registrations also could be compared to security passes that are starting to be issued to trusted citizens in order to expedite passage through airport security. Monetary incentives associated with open market pricing and property rights for end users creates system integrity that could apply to CALEA needs.

Price paid for telephone numbers could add to the authenticity and trust probability calculation for CALEA purposes. In other words, the higher the price paid for a telephone number, the less likely that number will be used for nefarious purposes.

### **Dispute Resolution Alternative (Item B.12 Elaboration):**

Market based transfers can be substituted for dispute resolution processes. Without an open market to transfer subscriber rights for individual telephone numbers, any dispute that arises regarding subscribership to a telephone number must be settled by dispute resolution which ultimately could involve a costly and time delayed judicial proceeding. Open market pricing could quickly resolve disputes by allowing one contender for a telephone number to pay another contender to relinquish all potential rights to the telephone number. Landmark work by Nobel Laureate Ronald Coase demonstrated that clearly defined property rights in conjunction with the ability to transfer those rights for a price results in the optimal allocation of scarce resources for society (Coase, Ronald H. "The Problem of Social Cost", 3 *J. Law & Econ.* 1-44 (1960)). Being caught in the middle of subscribership dispute resolutions could be a burden for communication providers. Simply allowing one entity to buy out another entities actual or potential interest in the subscribership rights to a telephone number is an elegant and economically efficient way for potential disputes to be resolved.

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### **Personalization (Item B.13 Elaboration):**

Open market pricing of telephone numbers offers another value proposition for end users to personalize and consolidate their communication services. This is similar to the largely unforeseen popularity of personalized ring tones. The creative process for the public to match phrases with telephone numbers can only be estimated. Just as creativity is used to formulate vanity license plates that are unimaginable to anyone other than the person that comes up with the phrase, the same phenomenon could occur with telephone numbers once an open market is in place. Assuming telephone numbers become the electronic address to social networking sites similar to MySpace™ once ENUM is commercially launched, the visual appearance of end user telephone number could take on greater significance. If this is the case, the market for telephone numbers could increase because the value would be greater than the mostly non-visual nature of telephone numbers today.

### **Location Enabler (Item B.14 Elaboration):**

The registration process inherent in an open market exchange of telephone numbers should hasten the gathering of end user data. Part of this data could be used as a replacement for the geographic association of today's telephone numbering. If the data within the Tier 1B of 1.e164.arpa contained a primary location vicinity (zip code, city, county or state could be the levels of privacy) for the end user, functionality of the telephone numbering system that is currently fading away as geographic numbers become non-geographic, could be restored. For example, Aunt Bee might list her home address for the primary or default termination point. Even though Aunt Bee is traveling in Hawaii, calls would be treated as if she were in Mayberry unless a more precise locator would be available such as GPS. While location data gathering is not solely dependent upon monetary value that is inherent in a private property model, a market driven incentive to register telephone number subscribership interest will increase the likelihood the population of this data will occur.

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### **State Jurisdiction Enabler (Item B.14 Elaboration):**

The registration process with address information associated with the end user could provide a pathway for state regulators to claim jurisdiction over telephone numbers regardless of NPA. As telephone numbers become non-geographic because of changes in technology and the way telephone numbers are used (roaming, individual nature of numbers, VoIP sub-assignment of numbers, pre-paid wireless, telematics, etc.), states will find it increasingly difficult to determine what telephone numbers the citizens of their states are using. Registration that is market driven could be an enabler for state regulators to claim jurisdiction over individual telephone numbers independent of the specific telephone number. Let's assume that Aunt Bee is willing to purchase any telephone number that ends in the phrase "APPLE-PIE". Therefore she could shop for the following telephone numbers and be content with any of them:

1-336-APPLE-PIE, asking price: \$XXX.00, historical state of jurisdiction, North Carolina

1-602-APPLE-PIE, asking price: \$X,XXX.00, historical state of jurisdiction, Arizona

1-212-APPLE-PIE, asking price: \$XX,XXX.00, historical state of jurisdiction, New York

1-406-APPLE-PIE, asking price: \$XX.00, historical state of jurisdiction, Montana

With an open market for telephone numbers, Aunt Bee might choose the lowest priced telephone number from Montana. Her registration of subscribership assuming she uses her home address in Mayberry, North Carolina would transfer jurisdiction from the state of Montana to the state of North Carolina. This transfer of state jurisdiction would be very similar to the transfer of state jurisdiction when an automobile owner moves from Montana to North Carolina and must re-license the automobile in the new state of residence. Similar analogies can be drawn to end users that are roaming outside their state of residence to when they are driving their automobile outside their state of residence. Also, just as the Motor Vehicle Department of various states maintain a database of automobile owner information including name, address, phone number etc., that is public in existence but private in access, the same public existence with privacy safeguards should be established with telephone number end user data.

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Using our example, let's assume Aunt Bee's automobile is a 1995 Ford Crown Victoria. It is registered in the state of North Carolina in the name of:

Bee Taylor, sole and separate property  
123 Anystreet  
Mayberry, NC 12345  
1-336-555-2665

Or

The Taylor Family Trust  
P.O. Box 321  
Mayberry, NC 12345  
1-336-555-2665

In the case of the automobile, the registration is in public objective existence yet the specific information is privacy protected. Anyone can see that a registration exists for Aunt Bee's 1995 Ford Crown Victoria as she drives around Mayberry with the North Carolina license plate bolted to the rear bumper of the car. Perhaps, anyone can go online and enter the license plate number of Aunt Bee's automobile and see that the registration fees are currently up to date. While online however, they will not be able to access Aunt Bee's specific title information containing registered name, address and phone number. Andy Taylor as Sheriff of Mayberry will be permitted access to this information due to his trusted status as a law enforcement officer. This same public registration existence with privacy protection surrounding specific information is the most likely operation of the registration of private property rights for telephone numbers.

Even if the historic commons model of telephone number administration and allocation continues to exist, this issue of telephone number disassociation with geographic location will continue to grow for state regulators. Although registration incentives inherent in an open market pricing model are not the only way for end users to register their information in a centralized database, unleashing the economic incentives for end users to spend their time and energy to maintain up to date registration is an elegant and time tested way to do so.

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### **Legacy Compatible (Item B.16 Elaboration):**

Open market pricing creates an incentive to take action regarding an end user registering their subscriber rights but this action is purely voluntary. End users who that take no action will be unaffected. Telephone service will not be impacted by those that ignore or choose not to involve themselves in the open market pricing of telephone numbers. Therefore, the open market pricing model as proposed is backward compatible to the historic commons model of telephone number administration and allocation.

Let's assume the private property model is introduced on January 1, 2008. Let's also assume that Aunt Bee has no interest in anything other than baking apple pies. Her telephone number will continue to function as it always has but, her subscribership interest will exist as unregistered and subjective. Any property rights associated with 1-336-555-2665 will remain unclaimed but assigned by the carrier-of-record to Aunt Bee. In the event that an entity attempted to claim Aunt Bee's telephone number, that attempt should be thwarted by the carrier-of-record rejecting the application for registration by the unauthorized party. If Barney Fife somehow registered 1-336-555-2665, Barney's unauthorized registration might constitute a liability for the carrier-of-record since subscribership will be subjectively designated by that carrier.

### **Technology Neutral (Item B.17 Elaboration):**

Open market pricing of telephone numbers is completely technology neutral. Although pricing becomes a dynamic governing factor that takes into account changes in technology on a real time basis, allowing telephone numbers to trade in the open market is independent of the technology associated with a given telephone number. For example, Aunt Bee could sell 1-336-555-2665 and purchase 1-336-APPLE-PIE regardless of how she intends to provision the new number. 1-336-APPLE-PIE will operate on her rotary dial phone or it could be the centerpiece of her new social networking site that is rich with multi-media ENUM enabled services. Wireline, wireless, PSTN or IP network services can all be accommodated by an open market for telephone number end user subscriber property rights without relying upon a technology distinction.

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### **Communication Service Provider Neutral (Item B.18 Elaboration):**

Open market pricing shifts numbering resource allocation directly to the end user with the communication service provider taking the role of an administrative facilitator. This creates a level playing field for all communication service providers regarding numbering resources. It also opens the door for communication service providers to compete on a telephone number service centric basis in addition to a transmission basis.

### **Service Neutral (Item B.19 Elaboration):**

Under open market pricing and ENUM, telephone numbers become service agnostic. A telephone number becomes free to accept all communications and media. Telephone numbers become pure electronic addresses for any electronic communication/media service. A telephone number can serve as the front door for any and all communications and media services available today and in the foreseeable future.

Example:

Aunt Bee can use 1-336-APPLE-PIE to connect to her rotary dial phone and continue to only use traditional PSTN voice service to talk to Millie, Andy and Opie. Using ENUM capabilities that became available to her when she chose to purchase 1-336-APPLE-PIE, she could provision a full spectrum of audio, video and data services so that she or anyone else dialing the number will receive a rich multi-media experience. When dialing the number, Aunt Bee might provision a fully enabled social networking site for herself with the help of Mayberry Telecom. This site might look and feel like a MySpace™ site and could perhaps incorporate an actual MySpace™ site but have additional functionality and more ubiquity because of the universal nature of 1.e164.arpa.

Expanding the nature of service associated with telephone numbers to include a visual experience along with the traditional audio experience (talking to Millie) might result in greater demand for telephone numbers to appear as phrases. When Aunt Bee sets up her social networking site, she will probably prefer showing her phone number as 1-336-APPLE-PIE versus 1-336-277-5374. As Aunt Bee's friends visit her site and see 1-336-APPLE-PIE prominently displayed throughout the site, they might become interested in obtaining a telephone number that spells something of value to them. This could spark a phenomenon similar to the viral spread of ring tones when they were first introduced into the



## **Transaction Examples Using Open Market Pricing for Telephone Numbers**

2/13/2014, 5:45:31 PM

Submitted by Jay Carpenter of The 1-800 American Free Trade Association (1-800 AFTA)

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telecommunications mix. If the momentum grows for retail consumers to purchase telephone numbers that spell phrases because of the visual element associated with upcoming ENUM related services, the market driven catalyst for registration and provider support services will be strong.

### **Dynamic in Real Time (Item B.20 Elaboration):**

Price set by an open market becomes a singularity reflecting all available information. Price takes into account all the factors listed above and creates one point that governs multiple dynamics at any given point in time. Market pricing instills systemic efficiency that cannot be attained by regulatory fiat.

### **E. Summary**

The open market pricing model for telephone numbers has opened societal value from the following respects:

1. Greater subscriber choice of more useful telephone numbers to individual subscribers. Telephone numbers that serve the exact purpose of the subscriber are likely to be held longer and consolidate a subscriber's communication media.
2. Market transactions that unveil monetary value could support taxing mechanisms for purposes such as the Universal Service Fund.
3. Incentives to optimize scarce resource allocation.
4. Incentive for end users to register telephone numbers into Public ENUM.
5. Once end users have registered a telephone number that has value to them, the registration information is more reliable as a trusted source and the trust strengthens over time. This could reduce unwanted communications such as spam.
6. Data contained within the registration could be used for E911 and CALEA.
7. Data regarding the primary location of the end user that purchases the telephone number could be used by state regulators to claim jurisdiction over individual registrants.



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This could solve the problem for state regulators arising from the trend of telephone numbers no longer being associated with a geographic location.

8. A new business model for existing communication providers to offer their customers.
9. This is a technology neutral model
10. This is a level playing field for all providers
11. Market pricing will react in real time to changes taking place that impact communications and media.
12. Telephone numbers that are acquired in the open market by subscribers are more likely to prevail as the electronic address of choice when competing with other electronic addressing schemes.
13. Dispute resolution while the customer is still primarily using the PSTN. The aging period (six months?) after registration is the time where end user subscribership title to the telephone number is perfected.

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### **F. Areas to Address**

- a. Lifting existing regulatory constraints to allow open market pricing of telephone numbers.
- b. The potential for telephone number misappropriation by unauthorized attempts to sell Aunt Bee's telephone number fraudulently.
- c. Infrastructure development for market place functionality within the 1.e164.arpa Tier 1B.

### **G. A Proposed Practical Method of Implementing this Market-Based Model**

- a. Step #1: Implement Property Rights and Open Market Pricing of Telephone Numbers of Toll Free 1-800 Numbers Registered into 1.e164.arpa.
- b. Step #2: Implement Property Rights and Open Market Pricing of Telephone Numbers of All Portable Toll Free 1-888, 1-877 and 1-866 Numbers Registered into 1.e164.arpa.
- c. Step #3: Implement Property Rights and Open Market Pricing of Telephone Numbers of Select NPAs within the North American Numbering Plan Registered into 1.e164.arpa.
- d. Step #4: Full Implementation of a Property Rights and Open Market Pricing Model for All Telephone Numbers within the North American Numbering Plan Registered into 1.e164.arpa

### **H. Conclusion**

The net result is a potential gain for all stakeholders from open market pricing and the establishment of a private property model for E.164 telephone number subscriber rights.

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### **Appendix Items and Notes (Listed by Appendix Item #):**

#### **Appendix Item 1: "World's Most Expensive Mobile Number is 666 6666"**

This is another example of market pricing at work to allocate a valuable electronic address (E.164 telephone number) to the highest and best user. The result is optimization of societal efficiency from the end user and dialing public's perspective. This number of 666-6666 establishes a convenient connection for the public to conduct communication and media services for airline business.

[http://www.theregister.co.uk/2006/05/23/mobile\\_number\\_sold/](http://www.theregister.co.uk/2006/05/23/mobile_number_sold/)

#### ***World's most expensive mobile number is 666 6666***

By [John Oates](#)

Published Tuesday 23rd May 2006 15:19 GMT

The world's most expensive phone number was auctioned for charity yesterday in Qatar.

The number, 666 6666, sold for 10m Qatari riyals or £1.5m. The previous record holder was Chinese number 8888 8888, which sold for £270,000. The Cantonese word for eight sounds very similar to the word for rich. It was bought by Sichuan Airlines.

The auction started at a million riyals and interest quickly narrowed from eight bidders to just two, according to Kuwaiti News Agency (KUNA).

The auction was organized by national telco Qtel, which has run two previous auctions and plans to run another in September. More details [here](#) (<http://www.kuna.net.kw/home/Story.aspx?Language=en&DSNO=868660>). We tried phoning Qtel for more details, but they'd all gone home because it was 6pm...

Having seven sixes as your mobile number might seem devilish to some, but interpretations vary. A brief dip into the weird world of numerology shows 666 is seen as holy in Judaism because it represents six directions - up, down, north, south, east and west. Others equate it with the Arabic word "allah" meaning God.

On a techy note, the first Apple Computer sold for \$666.66, the sixth letter of the Hebrew alphabet is w - so www. shows how evil the internet is. And finally, Viagra has a molecular weight of 666.7g/mol. More nuttiness [here](#) ([http://www.absoluteastronomy.com/enc3/number\\_of\\_the\\_beast\\_numerology](http://www.absoluteastronomy.com/enc3/number_of_the_beast_numerology)). ®

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### **Appendix Item 2: "eBay Auction Has Your Number"**

Although this auction was halted by a violation of legacy regulations that currently govern telephone number allocation, the price associated with the auction reflects a demand among the public for unique telephone numbers.

Auctionbytes-NewsFlash, Number 701 - February 16, 2004 - ISSN 1539-5065

#### **eBay Auction Has Your Number**

By [\*David Steiner\*](#)

[AuctionBytes.com](http://AuctionBytes.com)

February 16, 2004

Looking for a good time? Call 867-5309. Or just type in eBay auction number 3077991790.

While the eBay auction hardly has the same ring to it, it certainly has been ringing up bids - topping \$50,000 with more than six days left in the auction. Why is a phone number attracting so much attention?

It might have a little something to do with a 1981 song called "Jenny/867-5309", by a one-hit-wonder band called Tommy Tutone. The song, which hit #4 on the charts in early 1982, was written about a girl that one of the band members was trying to date. The song wreaked havoc with owners of that telephone number, causing many to change their phone number, and some telephone companies to take it out of circulation entirely.

According to the auction, number portability allows the owner of the phone number to sell it and transfer ownership to another person. It's debatable whether having this number is a blessing or a curse, but for the right bid, you can, as the auction description states, "Have 212-867-5309 as your telephone number. Get the greatest number in the greatest city."

Buyer pays any transfer fees to the phone company.

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### **Appendix Item 3: "Number Portability Problems by Tom Keating"**

This blog entry by knowledgeable telecommunications professionals demonstrates the first hand problematic vagaries in today's subjective subscribership existence associated with the commons model of telephone number assignment.

Blog Entry by Tom Keating:

<http://blog.tmcnet.com/blog/tom-keating/voip/number-portability-problems.asp>

#### **Number Portability problems**

September 05, 2006

I never thought that in 2006 I would have number portability problems. Hasn't number portability regulations evolved to the point where it is no longer an issue? Alas, I found out the hard way that number portability is **still very much a political game** by the phone carriers and even the VoIP service providers to hold their customers hostage.

First, let me state that I've been a happy [Vonage](#) customer for many years, and used it in two different home addresses with the same exact phone number, which was ported from AT&T/SBC. Thus, I've had the same phone number for about 10 years, which many friends and family know.

Recently, I decided I would [drop Vonage](#) in favor of a triple play offering from Charter, which would give me cable TV, high-speed Internet, and "voice over cable" - all at a very reasonable price. My wife and I encountered too many network or Vonage QoS issues which affected our phone service. It was time to port the number to Charter, which advertised that they could port customer's numbers in a mailer we received. When I called to order, they said they could not port my Vonage number since "That Norwalk number (203-854-XXXX) is not in your rate

area" I was told.

I was a bit annoyed Charter couldn't port my number, but I wasn't entirely surprised either. Since my wife and I didn't want to give up our number, we decided to stay with Vonage - held hostage to a phone number that Vonage owned. I should explain that a "rate center" is geographically tied to certain local exchanges. For instance, my current home address in Brookfield has (203-740-XXXX and 203-775-XXXX) as two of its most common local exchanges. Thus, since my current number (203-854-XXXX) wasn't in any of the Brookfield exchanges, they *claim* they can't port the number.

But here is what I don't understand. Why is it that Vonage **was** able to port my Norwalk number and yet they didn't have a geographical footprint in Norwalk - namely a rate center located there. Why aren't they bound by these geographical restrictions? Further, I was able to take my Norwalk number ported to Vonage to my new home address in Brookfield. Obviously, IP packets don't care where they originate, so as long as I had broadband, I can take my 203-854-XXXX number anywhere.



I figured maybe SBC might have better luck at porting if I agreed to sign up for SBC DSL and SBC's voice offering. (Double-play package). They at first said they could port the number and

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even told me that they would take care of cancelling Vonage for me, which is typical when customers move to another phone service provider. I was feeling the . But then they called me back 30 minutes later when they realized that they couldn't port the number since I was outside the rate center. My heart . I was already aware that I could port my Vonage phone number to Sunrocket or Lingo if I so desired, but I'm trying to *move away from "single play" VoIP providers.*

Thus, it would appear that you can port from a phone carrier to a VoIP provider, AND you can port from one VoIP provider to another VoIP provider, BUT you **cannot** port your number BACK to a traditional phone carrier or a cable company. If my interpretation is true, this **clearly gives single play VoIP providers a key 'number porting' advantage** over the traditional phone carriers and cable companies. In fact, I may have to update my controversial [Pure VoIP vs. Telephone and Cable VoIP](#) article and add this to Single Plays' list of "Pros" (vs. Cons).

### **Summary of Porting:**

- **Carrier/cable to VoIP** – Good
- **VoIP to VoIP** – Good (if the number was originally owned by a phone company & ported. If the number was owned by the VoIP service provider when you signed up, most likely you will not be able to port.)
- **VoIP to Carrier/cable** – Bad

Back in 2004 [I wrote about VoIP2Save.com](#), and how the VoIP service providers were holding their VoIP customer's "hostage" by not allowing them to port their phone numbers. In 2003, a federal law mandated customers of cellular telephone service be allowed to keep their phone number if they decided to switch carriers. Unfortunately, Internet phone companies were not covered by the law.

In that 2004 article, I wrote in part, "For example, if you started with AT&T, then signed up with Vonage, then wanted to switch to Lingo, you can port your number. However, if you originally started with Vonage and used Vonage's allocated phone number, you will have difficulty porting your number (if at all)." So it would appear that it is even *more difficult* to port your Vonage number if it's a originally-owned Vonage number.

Under the Federal Communications Commission's (FCC's) ["local number portability" \(LNP\) rules](#), you can switch telephone service providers within the same geographic area and keep your existing phone number. However, if you are moving from **one geographic area to another**, you may not be able to take your number with you. In addition to switching from one wireless company to another, in most cases, you will be able to switch from a wireline company to a wireless company, or from a wireless company to a wireline company, and still keep your phone number.

The FCC's decision to "tie" geography to number portability open a **huge** gaping loophole in the number portability regulations for the phone service providers to exploit. They can now deny to port a defecting customer's number simply based on geography. I should point out that many people move every 3-5 years, which means the phone companies can choose not to port their number. Now, I can certainly see if a person moves to another area code that porting the number should be restricted, but if you are simply moving a few towns over (same area code), why can't the customer keep their phone number? With the advent of VoIP, local exchanges (203-775-XXXX) or the famous 212-XXX-XXXX NYC exchange are **no longer tied** to customers within a *specific* geographic region. I recall an article where a Pakistani living in

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Pakistan (& using VoIP) had a 212-XXX-XXXX number so it could appear he had a New York City address for his business.

In 2004, VoIP2Save.com surveyed many other internet phone companies, including Vonage, Packet8, Voice Glo, Lingo and I-Connect. It found that none of the companies allowed customers to keep a phone number the company assigned to them, if the customer decided to switch to another phone company. I need to confirm whether or not this still holds true for all of them in 2006, but it at least holds true for Vonage, since I tried both Charter and SBC to port my Vonage number.

On KUTV, a SBC affiliate in Salt Lake City, it wrote a [recent article](#) (May 2006) stating, that a family couldn't port their Lingo phone number to Vonage and cited the same [FCC](#) number portability regulation that I did and pointed out that Voice over Internet companies were not covered by this regulation.

So how is it that VoIP companies can get the traditional phone companies to always port phone numbers for their new VoIP customers? If the traditional phone companies aren't obligated to port any number to any customer "outside" a geographic region, how do the VoIP companies convince the carriers to give up the number?

One theory I have is that since VoIP service providers have no "rate center" (they simply pay/rent the phone numbers from the phone companies), they don't have any geographic limitations. Thus, they can tell the phone company that Customer A wishes to leave and "port" their phone number. If the phone company asks if Customer A is going to be in the same geographic region, the VoIP companies **can lie** and say "yes" even if the customer has moved. Tracking IP packets to a specific location is difficult - not to mention it requires a court subpoena - so how are the phone companies going to "prove" that their defecting customer is still in the same geographic region? Since they can't the phone companies are forced to give up / port the number to the VoIP service provider. In my "phone shopping scenario" with Charter and SBC - they have an obvious geographic footprint, bound by wherever the coax or copper wire is installed, which limits the local exchange numbers they can provide as well as port. I guess that's the beauty of IP which is location agnostic.

This is just a theory, but it seems to be the most logical conclusion. There may be some other law or regulation I am missing, so feel free to post a comment.

What did I end up doing? I went with SBC's "double play" package (voice & data) for \$50/month with unlimited voice calling. \$25 for voice and \$25 for data. Alas, I lost my old 203-854-XXX number and now have a new one. I also dropped Charter cable and went with DirecTV. My bills as a whole will be cut like \$55/month, making it worth losing my old number. So yes, I have dropped VoIP entirely in favor of SBC traditional voice - forgive me for my sin. Well, I do still use [Skype](#) and plenty of other VoIP products, so I'm still high on VoIP.

So let me just finish this by saying **"number portability my \*\*\* (edited by Jay Carpenter)!"**

*(Sorry for the profanity, but it had to be said.)*

Tags: [charter voice](#), [directv](#), [double play](#), [number portability](#), [sbc](#), [triple play](#), [voip](#), [vonage](#)  
Related Tags: [phone number](#), [number portability](#), [phone companies](#), [service providers](#), [phone company](#), [number](#)



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1. RE: Number Portability problems

Michael :

So, you were able to port the number to SBC?? If yes, is that because SBC provides service to the geographic area of you number, whereas Charter does not?

1. RE: Number Portability problems

Tom Keating 

No, I wasn't able to port my number. I lose my number. I clarified my original post.

1. RE: Number Portability problems

**Andy** :

Your frustration with LNP is obvious, but your ire is misplaced and accusing your former company of lying in order to be able to port your number shows a lack of understanding of the LNP process. You blame the VoIP company for the trouble. It actually isn't [Vonage](#) that is the problem, it is the phone company that won't (not can't) port your number back. I am not a Vonage fan. I work for a CLEC. The difficulty is not with Vonage lying to SBC in order to get your number ported. Actually, Vonage technically doesn't port your number because they aren't a phone company; they are an "Enhanced Service Provider" (FCC definition) and aren't covered by many of the regulations that phone companies (including CLECs) are, but that's all a different story. In brief, your number was ported to a CLEC underlying carrier for Vonage. The difficulty came about when you wanted to port to another carrier. When you wanted to go to SBC, that carrier has large databases of various types. SBC and the ILECs are in the phone business, but a large part of the phone business is keeping the database accurate, so that efficiencies can be realized. With millions of customers and seemingly almost as many rate plans and products, it is critical to keep some order to the process. So, when you wanted to port a number that is not in the rate center in which you reside, it raised red flags. One of the problems that would have caused for SBC is: how would SBC determine whether a call is a local call or long distance call

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1. RE: Number Portability problems

Tom Keating   :

[September 6, 2006 10:35 AM](#)

Andy wrote: Actually, [Vonage](#) technically doesn't port your number because they aren't a phone company; they are an "Enhanced Service Provider" (FCC definition) and aren't covered by many of the regulations that phone companies (including CLECs)...

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There is way too much confusion and inconsistency as to who is able to port and who can't. Rich Tehrani basically bitched for 4 months to get his number ported. I just didn't think it was worth my time and effort to save my old number. 🙄

If fact was I believe happens is that once Vonage, Sunrocket, a wireless carrier, or any other non-geographic player gets a hold of your number, it is considered "contaminated" if it ever goes back into the landline pool. Under the rules for contaminated numbers, it must be aged for something like 90 days. What you didn't consider is that wireline to wireless, or VoIP to wireless is probably also easy. I think you could keep it, if you're willing to wait while it ages. My guess is that either the back office systems don't support aging, or customers won't wait, so it isn't done.

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Tom:

I agree it wasn't worth your time and effort. You ran into the old "this is the way we've always done things" scenario. I have heard from the big carriers (ILECS) the word "can't" so often when what they really mean is "won't". The rep is probably actually correct in a sense in saying "can't" because he/she typically doesn't have the ability to put your telephone number into their system if it doesn't match the rate center the system is expecting. Envision this: the rep has a green screen terminal, types in your address, and the system fills in the NPA and offers certain choices of NXX's. When you wanted to port in a number that didn't have a matching NXX, oops, there is no match with the choices the system gives, there is no override button and thus, you have the proverbial square peg in round hole scenario. Now, the ILEC could change their systems and offer a porting in option, but they have to put controls in so that the number gets ported in correctly, the CO routing tables get built correctly, the rating tables are built correctly, etc. So, the easy and cheaper way out is for the ILEC to say: "No, we can't port your number from that bad old VoIP provider, but wouldn't you like a nice new number [that fits in with our system]?" (sarcasm probably obvious). Also, in addition to winning a customer, the ILEC can make the VoIP provider look bad, so they get 2 for 1!

I didn't mean to imply that porting the number from a VoIP provider to a CLEC was difficult. Porting is often done, it just takes more work and since the CLEC typically wants your business, they will usually go the extra mile. SBC wants your business according to their rules. Not that that is bad, it is just required in order to maintain the efficiencies of a huge organization. Porting your number in can be done, it just matters to SBC whether or not it fits in with the rate centers that are defined in the central offices. So, if you hadn't moved, I wonder if porting would have worked?

Why Charter wouldn't do it is beyond me. As I mentioned, I think they missed the boat and should have ported your number over. Some possibilities are: 1) maybe they don't have much experience in porting? 2) maybe their system is only set up to port numbers from ILECs and they don't want to hassle with porting numbers from CLECs or VoIP providers? 3) maybe they

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Perhaps if I went with [AT&T](#) CallVantage (a VoIP server) I would have been able to port the number. But I would lose my double-play voice/data special package, plus guaranteed voice quality at a flat monthly rate.

September 7, 2006 12:47 PM

The bottom line is that there are a host of sub-issues tied to the geographical link between a number and a subscriber's address. The biggest are billing for toll vs. local calls, translations and routing, and E911 call management. You could write an entire multi-part article about each of these areas. Let's just say that the nature of the POTS network (and VoIP providers must do business on the POTS network) is such that geographical independence is not yet possible. The far newer cellular network and the nature of mobile phones created a session registration schema that adapts to number portability. But the POTS and cellular networks are fundamentally different so what works for one, won't necessarily work for the other.



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So how can Vonage and other carriers do it? Your theory is close to correct in some cases. Some carriers do not provide accurate address data, and then they hope that no one has a heart attack at that location. Other companies employ a very inefficient process of assigning "ghost numbers" from the correct rate center to the subscriber's location, making the arrangement appear as though it is geographically aligned. Monetary settlements over IP based traffic are already a source of contention in the industry and will likely escalate into a full fledged brewha. Traditional phone companies are creating wholesale products for VoIP carriers to try and manage the sharing of revenue. All of this creates the illusion that numbers are being held hostage. In fact, these industry practices are necessary to facilitate the multi-owner/operator network that has evolved with competition. Do I like it? No. I'd rather be able to port numbers anywhere, anytime. I am working on just that for my company, but it's a little trickier when you try to accomplish that while still complying with the "rules".

Anyway, I guess my only point is that phone numbers in the landline network are still very much tied to geographical locations. As much as we wish they weren't, the complexities of moving beyond geography as a limiting factor are significant and not easily overcome.

Thanks for the article; it illustrates what our customers feel every day.

Re: Number Portability problems

- **About Me** (Tom Keating) ([Full Bio](#))



CTO, VP, Founder of TMC Labs; B.S. Computer Engineering, 12 years telecom experience, 26 years programming, tinkering with and breaking computers. Gadgets and VoIP are my favorite topics on this blog

### **Contributor**

Gadget and Consumer electronics lover [Randy Savicky](#) (President and CEO of [Strategy + Communications, Inc.](#) has written about consumer electronics and gadgets for nearly three decades.

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### **Appendix Item 4: Additional Examples of 1-336-555-2625 Configurations**

\*Additional examples of possible configurations of 1-336-555-2665:

1-336-555-COOKIE

1-336-555-BOOKIE

1-336-JKL-BOOKS (see <http://www.lathamlaw.org/publications.html>), JKL Communications

1-336-JJJ-BOOKING (<http://www.ranchweb.com/triplejranch/>) JJJ Wilderness Ranch

## Transaction Examples Using Open Market Pricing for Telephone Numbers

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### Appendix Item 5: E.164 Telephone Number Definition from SearchNetworking.com

[http://searchnetworking.techtarget.com/sDefinition/0,,sid7\\_gci1094695.00.html](http://searchnetworking.techtarget.com/sDefinition/0,,sid7_gci1094695.00.html)

## **E.164**

DEFINITION- E.164 is an international numbering plan for public telephone systems in which each assigned number contains a country code (CC), a national destination code (NDC), and a subscriber number (SN). There can be up to 15 digits in an E.164 number. The E.164 plan was originally developed by the International Telecommunication Union (ITU).

With E.164, each address is unique worldwide. With up to 15 digits possible in a number, there are 100 trillion possible E.164 phone numbers, more than 10,000 for every human being on earth. This makes it possible, in theory, to direct-dial from any conventional phone set to any other conventional phone set in the world by inputting no more than 15 single digits.

The ITU and the Internet Engineering Task Force ([IETF](#)) are currently working on a new plan called [ENUM](#) that will expand E.164 to encompass both traditional analog phones and digital devices, including computers and other devices on the Internet. All types of communications devices -- including analog phone sets and fax machines, digital phone sets and fax machines, wireless (cellular) phone sets, pagers, digital modems, digital video terminals, and [VoIP](#) devices -- will have unique E.164 addresses with direct dialing possible from any device to any other.

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